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UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF AGRICULTURAL ENGINEERING

September, 1938.

WASHINGTON, D. C.

Agricultural Engineering.

Agricultural engineering research projects at the State agricultural experiment stations, corrected to January 1, 1938. Saint Joseph, Mich.

American society of agricultural engineers, 1938. 23p. Mimeographed.

Tomorrow's challenge to agricultural engineers. By Arnold P. Yerkes.

Agricultural Engineering. v. 19, no. 7. July, 1938. p. 303-306.

Agriculture.

Agricultural planning in Pondera county, Montana. By J.C. Taylor.
Bozeman, Mont., U.S. Department of agriculture. Extension service.
Division of cooperative extension, 1938. 16p. Mimeographed.

Annual report: Research and investigational activities for the fiscal year ending June 30, 1938. Athens, Ga., 1938. 75p. University of Georgia. College of agriculture.

Arizona handbook; 1938 agricultural and range conservation programs.
Washington, U.S. Govt. print. off., 1938. 36p. U.S. Department of agriculture. Agricultural adjustment administration. Western division.

California handbook; 1938 agricultural and range conservation program.
Washington, U.S. Govt. print. off. 1938. 53p. U.S. Department of agriculture. Agricultural adjustment administration. Western division.

Colorado handbook; 1938 agricultural and range conservation programs.
Washington, U.S. Govt. print. off., 1938. 44p. U.S. Department of agriculture. Agricultural adjustment administration. Western division.

Economica y tecnica agricola, 1938. Numero extraordinario. Republica espanola. Ministerio de agricultura. Seix y Barral, 1938. 110p.

Federal-state relations for agricultural planning. By C.E. Brehm. Paper presented at the Mount Weather, Va., Conference on Federal-State relations and agricultural planning, July 7, 1938. 19p. Mimeographed.

Fiftieth annual report of Purdue university, Agricultural experiment station for the year ending June 30, 1937. Lafayette, Indiana, n.d. 111p.

Fifty-first annual report of the Agricultural experiment station of Nebraska. Lincoln, Neb., University of Nebraska, 1938. 67p.

Agriculture. (Cont'd)

- Fifty-sixth annual report of the Ohio agricultural experiment station for the year ended June 30, 1937. Wooster, Ohio, 1938. 141p. Ohio agricultural experiment station. Bulletin 592.
- Future of state planning: Report to the advisory committee by the State planning review group. National resources committee. Washington, U.S. Govt. print. off., 1938. 117p. Bibliography.
- Idaho handbook; 1938 agricultural and range conservation programs. Washington, U.S. Govt. print. off., 1938. 39p. U.S. Department of agriculture. Agricultural adjustment administration. Western division.
- Kansas handbook; 1938 agricultural and range conservation programs. Washington, U.S. Govt. print. off., 1938. 52p. U.S. Department of agriculture. Agricultural adjustment administration. Western division.
- Montana handbook; 1938 agricultural and range conservation programs. Washington, U.S. Govt. print. off., 1938. 44p. U.S. Department of agriculture. Agricultural adjustment administration. Western division.
- National and regional summary of county planning recommendations 1935-37. Prepared by Agricultural economics section, Division of cooperative extension, Extension service and Program planning division, A.A.A. U.S. Department of agriculture. Washington, D.C., 1938. 9p. Mimeographed.
- Nevada handbook; 1938 agricultural and range conservation programs. Washington, U.S. Govt. print. off., 1938. 36p. U.S. Department of agriculture. Agricultural adjustment administration. Western division.
- New Mexico handbook; 1938 agricultural and range conservation programs. Washington, U.S. Govt. print. off., 1938. 44p. U.S. Department of agriculture. Agricultural adjustment administration. Western division.
- 1938 agricultural conservation program - North central region. Washington, D.C., 1938. 34p. U.S. Department of agriculture. Agricultural adjustment administration. NCR-201.
- 1938 range conservation program. North central region. Washington, D.C., 1938. 10p. U.S. Department of agriculture. Agricultural adjustment administration. NCR-251.
- North Dakota handbook; 1938 agricultural and range conservation programs. Washington, U.S. Govt. print. off., 1938. 39p. U.S. Department of agriculture. Agricultural adjustment administration. Western division.

Agriculture. (Cont'd)

- Ohio agricultural statistics, 1936. Wooster, Ohio. 1938. 62p.
Ohio. Agricultural experiment station. Bulletin no. 593.
- Report on the agricultural experiment stations, 1937. By J.T. Jardine and W.H. Beal. Washington, U.S. Govt. print. off. 1938. 226p.
U.S. Department of agriculture. Office of experiment stations.
- Resume of experience in county agricultural planning. Extension service, U.S. Department of agriculture. Washington, D.C., 1938. 15p. Mimeographed.
- Rural poverty. Washington, D.C., Works progress administration, 1938. no paging. Mimeographed.
- Twenty-third annual report, University of Maryland, Extension service for the year 1937. College Park, Md., 1938. 85p.
- Types of farming in Missouri. By C.H. Hammar, W.J. Roth and O.R. Johnson. Columbia, Mo., 1938. 100p. University of Missouri. College of agriculture. Agricultural experiment station. Research bulletin no. 284.
- Utah handbook; 1938 agricultural and range conservation programs. Washington, U.S. Department of agriculture. Agricultural adjustment administration. Western division.
- Washington handbook; 1938 agricultural and range conservation programs. Washington, U.S. Govt. print. off., 1938. U.S. Department of agriculture. Agricultural adjustment administration. Western division.
- What's new in farm science. Part II Annual report of the director, Agricultural experiment station, University of Wisconsin. Madison, Wis., 1938. 95p. Bulletin 440.
- Wyoming handbook; 1938 agricultural and range conservation programs. Washington, D.C., U.S. Govt. print. off., 1938. 40p. U.S. Department of agriculture. Agricultural adjustment administration. Western division.

Air Conditioning.

- Air conditioning in the home. By Elmer Torok. 1st ed. New York, Industrial press, 1937. 296p.
- Degree-day handbook. 2d ed. rev. & enl. By Clifford Strock and C.H.B. Hotchkiss. New York, Industrial Press, 1937. 298p.
- Heating, ventilating, and air conditioning fundamentals. By W.H. Severns. New York, John Wiley & sons, inc., 1937. 467p.

Air Conditioning. (Cont'd)

✓ New research on air distribution. Air Conditioning. v. 95, no. 3. September 1938. p. 163. Research agreements have been entered into between American Society of Heating and Ventilating Engineers, University of Wisconsin, Case School of Applied Science, and one is pending with University of Illinois to expand study of air distribution and air friction as related to design and performance of air conditioning equipment. Program now getting under way contemplates three point investigation: (1) Tests of effect of air distribution as air in circulation approaches air outlet, including tests with variable shaped openings. This research is being undertaken by the University of Wisconsin. (2) Tests by University of Illinois in specially constructed laboratory whose walls, ceilings and floors may be heated or cooled to determine most efficient location of air outlets. (3) Study and comparison of instruments used for air velocity measurement and behavior of air discharge from grilles into large unconfined spaces by Case School. In addition to this research, society laboratory in Pittsburgh announced virtual completion of air friction studies on straight ducts and extension of its investigation relating to air friction in duct fittings including elbows of various types.

✓ Study air conditioning costs. Heating, Piping and Air Conditioning. v. 10, no. 8. August 1938. p. 534. Results of preliminary survey on cost of air conditioning reported to recent annual convention of National Association of Building Owners and Managers. Study was based on data obtained by questionnaires on 20 installations of less than 100 tons. It was stressed that definite conclusions should not be drawn from figures presented because of limited data available and relatively brief operating experience. Survey is to be continued.

Barns.

Gothic rafter barns. American Builder. v. 60, no. 8. August 1938. p. 58-59. New laminated rafters developed to cut cost and save time.

Pen barns and milking parlors. By W.C. Harrington. Amherst, Mass., 1938. 1p. Massachusetts state college. Engineering extension series, no. 59. Mimeographed.

Suggestions for planning the goat barn. By W.C. Harrington. Amherst. Mass., 1938. 2p. Massachusetts state college. Engineering extension series, no. 66. Mimeographed.

Building Construction.

✓ Analysis of the building cost index. Federal Home Loan Bank Review. v. 4, no. 11. p. 395-399. Analyzes cost of materials and labor used in building standard house.

✓ Handling corners in rigid frames. By J. Lambert and C.J. Posey. Engineering News-Record. v. 121, no. 5. August 4, 1938. p. 147-149. Design suggestions on a troublesome but vitally important element of the popular rigid frame.

Building Construction. (Cont'd)

Need for supervised construction. Federal Home Loan Bank Review. v. 4, no. 11. August 1938. p. 400-401. Supervision of construction by lending institutions participating in Federal Home Building Service Plan protects collateral and at same time satisfies borrower.

Now is the time to build. Southern Planter. v. 99, no. 8. August, 1938. p. 14.

Combines.

Combine harvester investigations. In fifty sixth annual report of the Ohio agricultural experiment station for the year ended June 30, 1937. Wooster, Ohio, 1938. p. 116-120. Ohio agricultural experiment station. Bulletin 592.

Combined harvester threshed. I.D. Mayer. In fiftieth annual report of Purdue university, Agricultural experiment station for the year ending June 30, 1937. Lafayette, Ind., n.d. p. 14-15.

First combine museum sought. Implement Record. v. 35, no. 8. August, 1938. p. 46. \$12,000 museum to house the first Holt combine is being sought by citizens of Stockton, home of the old Holt Brothers Company. Machine has been in possession of Caterpillar Tractor Co., successor to Holt concern, but Caterpillar officials have promised to return the daddy of combines if museum project goes through.

Performance characteristics of 5- and 6-foot combines. By W.M. Hurst and W.R. Humphries. Washington, U.S. Govt. print. off., 1938. 36p. U.S. Department of agriculture. Circular no. 470.

Concrete.

Equations for weight proportioning of concrete mixes. By A.G. Schwartzenhaber. Civil Engineering. v. 8, no. 7. July 1937. p. 478.

Corrosion.

Corrosion, causes and preventative measures. Chicago, Ill., Technical service publishing co., 1938. Bulletin no. D-121. 6p. Mimeographed.

Principles of corrosion and its prevention. By F.N. Speller. Journal of the New England Water works Association. v. 52, no. 2. June 1938. p. 228-232.

Study of the atmospheric corrosion on wire and wire products. By I.D. Mayer. In fiftieth annual report of Purdue university, Agricultural experiment station for the year ending June 30, 1937. Lafayette, Ind., n.d. p. 16-17.

Cotton Gins and Ginning.

Cotton gin modernization. By C.A. Bennett. Cotton and Cotton oil press. v. 39, no. 28. July 9, 1938. p. 3-5.

Cotton Machinery.

Cotton harvesting and handling. By F.L. Gerdes, and C.A. Bennett. Cotton Ginners' Journal. v. 9, no. 12. September 1938. p. 7,9, 20, 22.

Machine picking - but not yet. Arizona Producer. v. 17, no. 8. July 1, 1938. p. 11. Plant breeder must join with engineer to perfect cotton harvester.

Relation of mechanical harvesting to the production of high grade cotton. Address by C.A. Bennett before the 32nd annual meeting of the American Society of Agricultural Engineers. June 29, 1938, at Asilomar, Pacific Grove, Calif. 5p. Mimeographed.

Cotton harvesting and handling. By F.L. Gerdes, W.J. Martin, and C.A. Bennett. Washington, D.C., Bureau of agricultural economics and Bureau of agricultural engineering. U.S. Department of agriculture, 1938. 13p. Multilithed.

Dams.

Building El Azucar Dam. Engineering News Record. v. 121, no. 8. August 25, 1938. p. 227-229. Some notes of a visit to Mexico's great rolled-fill dam El Azucar being built to put a quarter of a million acres under irrigation just south of the Rio Grande.

Dam tested by artificial earthquake. Engineering News-Record, v. 121, no. 6. August 11, 1938. p. 184-185. Vibrations set up by an oscillator measured as a check on computed period of vibration to forecast effect of earthquakes on Morris dam.

Effect of earthquakes on earth dams. By R.R. Martel. Military Engineer. v. 30, no. 173. September--October, 1938. p.359-361.

Diesel Engines.

Diesel; the modern power. By Technical data department, General motors research laboratories division. Detroit, Mich.; Department of public relations, General motors corporation, n.d. 31p.

Diesel engines; operation and service. Chicago, Ill., Technical service publishing co., 1938. Bulletin no. D-128. 14p. Mimeographed.

Lightweight diesel engine develops six horsepower. Popular Mechanics Magazine. v. 69, no. 6. June 1938. p.879. It is three cylinder, two-cycle motor, each piston weighing three ounces, having one and 1-half inch diameter and one and seven eighths inch stroke. Compression is 460 pounds with ratio of sixteen to one.

Electric Wiring.

Wiring: The neck of the electrical bottle. By F.J.G. Duck. Indiana Farmer's Guide. v. 94, no. 17. August 13, 1938. p. 411. ✓

Wiring the barn. By W.C. Harrington. Amherst, Mass., 1938. 7p. Massachusetts state college. Engineering extension series, no. 10. Mimeographed.

Wiring the laying house. By W.C. Harrington. Amherst, Mass., 1938. 8p. Mimeographed. Massachusetts state college. Engineering extension series, no. 67.

Wiring the milk house. By W.C. Harrington. Amherst, Mass., 1938. 5p. Massachusetts state college. Engineering series, no. 13. Mimeographed.

Electricity on the Farm.

Advantageous use of electricity on the farm. By Andrew Hustrulid. Northwest Farm Equipment Journal. v. 52, no. 7. July, 1938. p. 34-36.

Development in uses of electricity in rural Wales. By W.H. Jones. Rural Electrification and Electro Farming. v. 14, no. 158. July 1938. p. 2-7. ✓

Electric service for the farmstead. By J.B. Kelley. I.C. Hagman and E.G. Welch. Lexington, Ky., 1938. 46p. University of Kentucky. College of agriculture. Extension division. Circular no. 311.

Electrical farm labor saving devices are largely north of Mason-Dixon line. Domestic Commerce. v. 22, no. 4. August 10, 1938. p. 87.

Engineering services for farm users of electricity. By E.G. Stahl. Agricultural Engineering. v. 19, no. 7. July, 1938. p. 309-310. It has been recognized for long time that volume of power required for agricultural purposes is large, and that much of this power could be economically supplied from central station service, but early experience proved that great amount of effort had to be expended in developing equipment adaptable to farm use and in selling farmer on value of electric service for his operations. More farmers were willing to install and use electric lights and a few minor appliances, but in less densely settled areas use of these few appliances would not justify cost of rendering service. Job then was to develop electrical equipment for as many of power requirements of farm as possible, and to prove to farmer economical advantage of using this equipment.

Farm electrification. Farm Implement News. v. 59, no. 16. August 11, 1938. p. 42. Summing up responsibilities of agricultural engineer to electrification of farms emphasized four immediate needs to be faced.

Electricity on the Farm.

First, need enlarged research and development programs. Second, redesign much of our stationary farm machinery for electrical operation. Third continue to educate through keeping farmer informed of new and profitable applications of electricity. And finally, courage to apply ourselves to these problems in sound and businesslike manner.

Farm electrification shows standard rise. Electrical World. v. 110, no. 9. August 27, 1938. p. 595. Testing growth of farm electrification, as shown by mass statistics, against sample of 3,000 farms in selected counties in 40 states, Bureau of the Census announces that 39 percent of dwellings in this group now have electricity. Eight years ago only 23 percent of all farm dwellings had electricity, according to Census for 1930. In so far as these 3,000 farms were typical of country as whole, figures indicate relative increase of 70 percent.

Farm service sells farm service. By T.H. Haslam. Electrical World. v. 110, no. 3. July 16, 1938. p. 158-159. Utility installs complete electrification on selected farms and in return for five-month demonstration offers price concessions.

Rural electrification growth opens greatest of outlets for appliances. By F.B. Nichols. Printers Ink. v. 183, no. 9. June 2, 1938. p. 21-24.

Rural electrification pays for itself. By H.E. Pinches. Rural electrification news. v. 3, no. 10. June 1938. p. 14-15.

Tests on farm use of electricity started this week at Rochester. Electrical World. v. 110, no. 8. August 20, 1938. p. 3.

Electro-horticulture.

Use of electrical bottom heat in propagation by seed and by cuttings. By T.J. Harrold and R.A. Bowden. In annual report: Research and investigational activities for the fiscal year ending June 30, 1938. Athens, Ga., 1938. p. 47-52. University of Georgia. College of agriculture.

Erosion Control.

California beaches. By George Hjelte. Civil Engineering. v. 8, no. 7. July 1937. p. 463. Non-technical review of progress and problems in beach preservation.

Crop production on land damaged by wind erosion in the Great Plains. By Charles J. Whitfield. Journal of the American Society of Agronomy. v. 30, no. 6. June, 1938. p. 461-464.

Experiments on soil erosion control. By W.O. Collins and W.N. Danner. In annual report: Research and investigational activities for the fiscal year ending June 30, 1938. Athens, Ga., 1938. p. 18-19. University of Georgia. College of agriculture.

Erosion Control. (Cont'd)

Protecting Galveston beach. By C.C. Washington. Civil Engineering.
v. 8, no. 7. July 1937. p. 461-462. History of protective works
reviewed.

Relation of soils to mechanical erosion control structures. By O.R.
Zeasman. Agricultural Engineering. v. 19, no. 7. July, 1938.
p. 317-318, 324. Covers some field observations made during fifteen
years of extension work in soil erosion control. Work was confined
to one State, Wisconsin, and largely to one part of that State, but
other States have related or parallel conditions to which these ob-
servations may have application.

Surface run off and erosion on granitic mountain soils of Idaho as in-
fluenced by range cover, soil disturbance, slope, and precipitation
intensity. By G.W. Craddock. Washington, U.S. Govt. print. off.,
1938. 24p. U.S. Department of agriculture. Circular no. 482.

To conserve farm income and soil resources. By H.R. Tolley. Soil
Conservation. v. 4, no. 1. July, 1938. p. 11-13.

Evaporation.

Water loss through evaporation. By A.A. Young. California
Cultivator. v. 85, no. 11. May 21, 1938. p. 326, 331.

Farm Buildings.

Extension bulletins on farm buildings, Northeastern states. Compiled
by S.P. Lyle. Washington, D.C., 1938. 12p. U.S. Department
of agriculture. Extension service. Division of cooperative exten-
sion. Miscellaneous extension publication no. 46.

Farmhouses.

Farm house research. By J.W. Simons and F.B. Lanham. In annual
report: Research and investigational activities for the fiscal year
ending June 30, 1938. Athens, Ga., 1938. p. 66-75. University
of Georgia. College of agriculture.

Homes for farm people. Wallaces' Farmer. v. 63, no. 14. July 2,
1938. p. 12.

Planning the rural home. Knoxville, Tenn., 1937. no paging.
Mimeographed. University of Tennessee. Agricultural extension
service. Circular 38.

Farm Machinery and Equipment.

Bankers and farm machinery. By W.C. McFarlane. Northwest Farm
Equipment. v. 52, no. 7. July, 1938. p. 20-22.

Farm Machinery and Equipment. (Cont'd)

Beet crop mechanization: Its problems and possibilities. . . By M.J. Buschlen. Facts about Sugar. v. 33, no. 1. April 1938. p. 27-31. Recent developments in field machinery point to solution of hand work problem and reduction of crop costs.

"Catchpole" sugar beet harvester. Implement & Machinery Review. v. 64, no. 759. July 1, 1938. p. 285-286. It is a single-row machine, carried on two large diameter wheels, and trailed behind tractor. Mechanism is driven from tractor power take-off, and a system of steering is fitted so that operator can keep machine on the row, despite any deviations tractor may make. Machine will do approximately $3\frac{1}{2}$ acres of 22-inch work in $8\frac{1}{2}$ -hour working day, or 0.4 acres per hour.

Commission urges ban on companies buying competitors. Implement Record. v. 35, no. 8. August, 1938. p. 14. Federal inquiry report on equipment firms complains of dealer coercion, high profits and rigidity of prices.

Federal Trade Commission report. Northwest Farm Equipment Journal. v. 52, no. 7. July, 1938. p. 24-27.

Field ensilage harvester. By I.D. Mayer. In fiftieth annual report of Purdue university, Agricultural experiment station for the year ending June 30, 1937. Lafayette, Ind., n.d. p.17.

400-bushel planter. Country Gentleman. v. 108, no. 5. May, 1938. p. 86. Machine for deep planting and shallow covering, accomplishes this by use of two very small adjustable covering disks at rear. This machine has other outstanding features, one being adjustable picks on eight picker arms to suit size of tubers being planted. Manufacturer strongly advocates that size of seed be uniform, even grading it just as corn and other seed are carefully selected to fit planter plates. Machine can be equipped with spacer attachment which takes each seed piece down a foot on a paddle chain and deposits it at exactly the correct place in drill. Planter is so designed that automatic planting mechanism can be replaced quickly with assisted feed device. Fertilizer distributor will sow from 100 pounds of high-analysis fertilizer to 3,750 pounds of low-analysis per acre, based upon 32-inch rows. Planter comes in one, two, three and even four-row widths. Recent survey shows three fourths of Pennsylvania's 400 bushel potato growers using planter.

Grinding the farm tools. By L.M. Roehl. Ithaca, N.Y., Cornell University. Agricultural college extension service. Extension circular 702.

Harvester answers Commission. By S.G. McAllister. Farm Machinery and Equipment. no. 1855. July 15, 1938. p. 5-6.

Farm Machinery and Equipment. (Cont'd)

Home made farm equipment. By W.P. Kintzley. Fort Collins, Colo., 1938. 20p. Colorado state college. Colorado experiment station. Bulletin 443.

Lewallen poison bait spreader. By O.S. Bare. Lincoln, Neb., 1938. 3p. Mimeographed. University of Nebraska. Cooperative extension work in agriculture and home economics. Extension circular 1514.

Low cost machine for harvesting crimson clover seed. By F.W. Peikert. In annual report: Research and investigational activities for the fiscal year ending June 30, 1938. Athens, Ga., 1938. p. 9-10. University of Georgia. College of agriculture.

McCormick-Deering announces new beet pullers. Implement Record. v.35, no.8. August, 1938. p.40.

Manufacture and sale of farm equipment and related products. Bureau of the Census. U.S. Department of Commerce. Washington, U.S. Govt. print. off., 1938. 14p. Processed.

Many farmers need new corn planters. Farm Implement News. v. 57, no. 8. April 9, 1936. p. 50, 52.

Mechanical bait spreader. By O.S. Bare. Lincoln, Neb., 1938. 5p. Mimeographed. University of Nebraska agricultural college. Cooperative extension work in agriculture and home economics. Extension circular 1513.

Mechanical equipment of the eradication of bindweed. In fifty-first annual report of the Agricultural experiment station of Nebraska. Lincoln, Neb., University of Nebraska, 1938. p.6.

"Much ado about nothing". By Arch S. Merrifield. Farm Machinery and Equipment. no. 1854. June 15, 1938. p.7-9.

New machine harvests tiny Buffalo grass seed. By U.S. Dept. of Agriculture. Farm Implement News. v. 57, no. 8. April 9, 1938. p. 48. New suction machine, developed by Kansas men at state college and experiment station at Hays, Kansas, has collected as high as 95 percent of seed, or average collection in 35 tests of about 64 percent. Collecting nozzle in most successful models is about 6 feet long and 4 inches wide. Light chain dragging ahead of nozzle loosens seed from stems, or from dirt where it may be slightly imbedded. Best results are obtained when grass is closely clipped before seed is collected.

One way disk tiller. By A.J. Schwantes. St. Paul, Minn., 1938. 1p. University of Minnesota. Agricultural engineering news letter. No. 76.

Farm Machinery and Equipment. (Cont'd)

Paris agricultural machinery exhibit. Engineering. (London)
v. 146, no. 3781. July 1, 1938. p. 26.

" -- the Smith a mighty man is he" -- in California. By F.H. Higgins.
Farm Implement News. v. 59, no. 16. August 11, 1938. p. 20-22,
27. Being gossip on that latest trend in farm equipment organiza-
tion and policy wherein dispersion and diversification succeed con-
centration and simplification.

Some new machines announced by Minneapolis-Moline. Farm Implement News.
v. 57, no. 8. April 9, 1936. p. 43-44, 45, 48.

Weed mowers. By H.W. Wagner. In proceedings of the twenty-fourth
annual road school held at Purdue university, January 24-28, 1938.
Comp. by B.H. Petty. Lafayette, Ind., 1938. p. 147-149. Purdue
university. Engineering extension department. Extension series no. 42.

Fences.

Building woven wire fence. The Farmer. v. 56, no. 13. June 18,
1938. p. 6-7. Illustrations.

When you're fencing. Nebraska Farmer. v. 80, no. 15. July 16,
1938. p. 13. Illustrations.

Fences, Electric

Electric fence. By W.C. Harrington. Amherst, Mass., 1938. 3p.
Massachusetts state college. Engineering extension series, no. 64.
Mimeographed.

Electric fencing unit. By T.E. Hienton and J.M. Fore. In fiftieth
annual report of Purdue university, agricultural experiment station
for the year ending June 30, 1937. Lafayette, Ind., n.d. p. 12.

Fertilizer Placement.

Proceedings of the Thirteenth annual meeting of the National joint
committee on fertilizer application, held at Chicago, Ill., November 29,
1937. Washington, D.C., National fertilizer association, n.d. 187p.
Mimeographed.

Floods and Flood Control.

Flood control work of the Department. By Arthur C. Ringland. Soil
Conservation. v. 4, no. 1. July, 1938. p. 18-19.

Floods of "China's sorrow". By O.J. Todd. Military Engineer. v. 30,
no. 173. September-October, 1938. p. 319-326.

Floods and Flood Control. (Cont'd)

Land treatment and the control of floods. By E.W. Munns. Soil Conservation. v. 4, no. 2. August 1938. p. 49-51.

Frost Protection.

Blowers for frost protection. By Ben D. Moses. Agricultural Engineering. v. 19, no. 7. July, 1938. p. 307-308. Opinion that (1) under conditions of temperature inversions of 10 degrees in 100 ft. elevation, air temperatures in orchards may be maintained 3 degrees higher, with blower mounted on tower 40 to 50 ft. above ground; (2) blowers of 75 hp size will not handle over 10 acres, excepting under conditions of favorable air drainage; and (3) it may be possible to effectively combine a blower with orchard heaters.

Hotbeds.

Adaptability of electric hotbeds to farm use. In fifty-first annual report of the Agricultural experiment station of Nebraska. Lincoln, Neb., University of Nebraska, 1938. p.6.

Houses.

Real aid in constructing low cost homes. Lumber & Building Material Dealer. v. 7, no. 6. June, 1938. p.4. Development of new grade of Douglas Fir Plywood Sheathing, which is being grade-marked and scored under name of Plyscord. New grade has been standardized by all members of Association to meet needs of architects, contractors and builders for sheathing that is easy to apply, economical to use, and which will at same time add strength and rigidity to homes.

Hydraulics.

Compact hydraulic laboratory. By William Merton. Civil Engineering. v. 8, no. 9. September 1938. p. 611-612. There are many flood control problems in western part of state of Washington, each of which is rather small compared to comprehensive projects in some of middle and eastern states. Nevertheless, they are excellent examples for laboratory research to develop most economical and efficient improvements, and we are hoping that thorough model study will reveal designs which will bring these projects within financial reach of local communities. Facilities for such studies have been developed at University of Washington, in Seattle, involving several unusual features, among which is movable observation bridge, full-scale profilograph, midget current-meter control panel, and automatic sand feeder. These will be applied to models of movable bed type. Each model project will be operated as unit in outdoor flume, 20 ft. by 80 ft. with this equipment so arranged that it can be fitted to any of several flumes for various projects. This interchange of equipment allows schedule of research wherein operations can be separated from construction. In addition to feature of flexibility, coordination and development of this set-up has resulted in relieving observers of many tedious tasks that usually accompany hydraulic research operations.

Hydraulics. (Cont'd)

Hydraulic laboratory of the Federal Institute of Technology, Zurich.
Engineering. (London) v. 146, no. 3781. July 1, 1938. p.3-5.

Insulation.

Aluminum foil insulation. Washington, D.C., 1936. 3p. Mimeographed.
U.S. Department of Commerce. National bureau of standards. Letter
circular 465.

Irrigation.

Annual report (technical) of the work of the Central board of irrigation,
India 1936-37. Simla, India, 1938. Central board of irrigation.
Publication no. 16.

Comparative irrigation institutions in Hawaii and in continental United
States and some developments under them. By H.A. Wadsworth.
Hawaiian Planters' Record. v. 41, no. 3. Third quarter 1937.
p. 191-198. Irrigation is practice by which unpromising agricul-
tural land becomes outstandingly productive, or system of farming by
which at least one of hazards of agriculture is brought under some
measure of control.

Irrigation equipment. Montana Farmer. v. 25, no. 22. July 15,
1938. p. 10. Efficient pumps, ditchers and levelers now available;
Diesel power increasing in popularity.

Irrigation judgment. By H. F. Kenyon. California Cultivator. v. 85,
no. 11. May 21, 1938. p. 323, 339.

Irrigation of sugar beets. By L.D. Doneen. Facts about Sugar.
v. 33, no. 5. May 1938. p.40.

Irrigation structures and equipment. By I.D. Wood. Lincoln, Neb.,
1938. 18p. Mimeographed. University of Nebraska agricultural
college. Cooperative extension work in agricultural and home econ-
omies. Extension circular 757 rev.

Lower cost of irrigation canals with new type brick lining. By W.I.
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Growing tractor fuel market aids mid continent refiners. By A.S. James. National Petroleum News. v. 30, no. 27. July 6, 1938. p. 16-18. Table 2. Total tractor fuel production by months, compared with total crude runs reported by Mid-Centinent Refiners to W.P.R.A. (Figures in barrels.) Table 3. Comparison, by months, of tractor fuel production, shipments and stocks from April 1936 through May 1938, of Mid-Centinent Refiners.

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Sod furrow plow. Country Gentleman. v. 108, no. 5. May, 1938. p. 86. Plow consists of an 18-inch sulky equipped with both right-hand and left-hand bottom to form large lister. Shares were unchanged, but moldboards and frogs were shortened and reshaped to give gentle slope, so as to lift furrow slices more gently and avoid inverting them. Long, gently curved steel slats were fastened to rear of moldboards to hold sod up, while disk fastened immediately behind and under moldboards, moves soil from under upper furrow slice and throws it beneath lower furrow slice to form ridge. Disk is mounted on short beam. Therefore to reverse action of furrower from right to left it is only necessary to swing the disk. Large serrated rolling colter is used to split sod in front of plow. Cast-iron roller behind plow presses sod down on the ridge.

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Pumping equipment for irrigation. By Ivan D. Wood. Agricultural Engineering. v. 19, no. 7. July, 1938. p. 319-323.

Rising water tables bring pumping problems. By D.J. Whitney. California Cultivator. v. 85, no. 11. May 21, 1938. p. 334.

Underwater pump. Country Gentleman. v.109, no. 5. May 1938. p.86.
An outstanding development in the irrigation-pump field, during recent years, has been the submersible unit. It consists of standard deep-well turbine pump direct-connected to special electric motor. Motor is mounted directly below pump and just far enough away to allow water to enter pump. Outside diameter of motor is no greater than size of pump bowls. Whole unit is lowered into well, and operated completely submerged in the water. Electric motor operates successfully under water in steel case which is filled with dielectric oil. Oil keeps water out of motor parts, lubricates bearings, and conducts heat from motor to case, which is always surrounded by cold water.

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Household electric refrigeration. By J.F. Westrel and J.G. Praetz. 1st ed. New York, McGraw-Hill book company, inc., 1938. 406p.

Refrigerator Lockers.

Cold storage lockers and locker plants. By P.E. Thomas. Refrigeration. v. 64, no. 7. August 15, 1938. p. 6-8.

Farm people find it practical to store feeds in freezer lockers. Extension Service Review. v. 9, no. 8. August 1938. p. 115-116.

How cold storage lockers may affect livestock meat distribution. By R.J. Eggert. Ice & Refrigeration. v. 95, no. 2. August 1938. p. 135-137. Favorable factors appear to be following: 1. Frozen home produced meats are probably more palatable than home canned or cured meats. 2. Elimination of work of home butchering and home

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canning. 3. Locker storage permits more latitude in selecting time of year for butchering. 4. Immediate and thorough cooling under controlled temperature is possible. 5. Storage under controlled temperatures is likely to result in less spoilage than when meat is frozen at home. 6. Meat cutting by experienced butcher is likely to result in better utilization of carcass than would be the case of most farm cutting. 7. When compared to purchase of meat at retail some considerable saving may be possible. 8. Quality of meat that one wishes can be selected while purchase at retail necessitates taking what butcher has. 9. Most patrons at present appear to be well satisfied. 10. Some reduction in locker rental charges may be possible. 11. Tests by Home Economics Division, University of Minnesota, indicate that quality and palatability of frozen meats is equal to that of fresh meat. Tests on stored frozen meat have not been made. 12. Several plants have rented their capacity number of lockers in a very short period of time. 13. Joint enterprises such as creameries or groceries may be able to carry part of cold storage locker expense because of increased volume of business that they receive. 14. Possibility of centralized plant doing the killing, cutting, wrapping and sharp freezing service for a wide area with outlying subsidiary plants furnishing only locker storage. 15. With development of rural electrification larger quantities of meat can be taken from lockers and held for longer periods of time before use. 16. Possible development of delivery service, especially if plant is in connection with ice or milk business, or cream pick-up route. Unfavorable factors are: 1. Inconvenience of securing meat from locker may require more frequent trips to town. 2. Cash outlay for this service and storage is greater than when meat is canned and cured on the farm. 3. Family must consume entire carcass.

4. Lack of sanitation, and cleanliness at some plants. 5. Lack of qualified, inspection for disease. 6. Tendency to construct too large number of plants in one area. 7. Drying out of meat in some plants. 8. Molding of meat in several plants. 9. Possibility of violent temperature changes, and thus meat spoilage when ice machines break down and need repair. 10. Some patrons dislike to enter locker room in hot weather. 11. Noticeably high turnover of patrons at certain plants. 12. Fact that frozen meat, after being removed from locker, spoils more rapidly than fresh meat. 13. Small families may find locker rental cost per pound of meat stored in locker excessive.

Mohr gives candid outline of locker plant design problems and presents his version of an "ideal" layout. By W.L. Taylor. Air Conditioning & Refrigeration News. v. 24, no. 13. July 27, 1938. p. 5, 7. Especially concerned with air circulation and freezer burn.

Refrigerated food lockers; a new cooperative service. By L.B. Mann. Washington, D.C., 1938. 30p. Farm Credit administration, Cooperative division. Circular no. C-107.

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Suggestions for the location of farm produce stands. By W.C. Harrington. Amherst, Mass., 1938. 1p. Massachusetts state college. Engineering extension series, no. 63. Mimeographed.

Silt.

Sedimentation studies by the Soil conservation service, U.S. Department of agriculture. By C.B. Brown. Washington, D.C., Division of geology and geography, National research council, 1937. 22p. Mimeographed.

Stability of earthen channels. By A.N. Wilson. Indian Engineering. v. 104, no. 1. July 1938. p. 29. III.- Experimental verification of silt effects.

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Soil Conservation - farm by farm; field by field. By H.H. Bennett. Soil Conservation. v. 4, no. 1. July, 1938. p. 7-9.

Soil conservation from a land-use viewpoint. By J.S. Cutler. Journal of American Society of Agronomy. v. 30, no. 6. June, 1938. p. 520-528.

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